



FOREST CONTROL

by

CONTINUOUS INVENTORY

"Today I have grown taller from walking
with the trees."

...Karle Wilson

Milwaukee, Wis. October, 1961 No. 51

LIFE IS AN ALMOST CONTINUOUS EXPERIENCE OF HAVING TO DRAW CONCLUSIONS FROM INSUFFICIENT EVIDENCE

There is another mode of reasoning, which says, "Gentlemen, there are various alternative possibilities. No one of these is certainly correct and true, and no one certainly incorrect and false." There are varying degrees of plausibility --- of probability --- for all of these alternatives. I can help you understand how these plausibilities compare. I can also tell you how reliable my advice is. If you furnish me with a good deal of evidence, then I can give you pretty firm (but still not absolutely firm) advice. If you give me a little to go on, then naturally my advice will be much more shaky. But in all these cases, my advice can give some useful estimate of the comparative plausibilities. This is the kind of logic which is developed in the THEORY OF PROBABILITY.

"Probability: The Odds Are
That It Affects You."

By Warren Weaver

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RESISTANCE TO TREE QUALITY GRADING

Sometimes we find folks who oppose the grading of hardwood sawlog tree quality in CFI cases. This is too bad, but there is little we can do to counteract this attitude except from time to time to publish information on the methods, standards and results. This we have done to a limited extent in previous newsletters, and the process will be continued, for we are sure that foresters who object to the grading of tree quality should take another long look at the procedures.

It is important to secure an indicative measure of stand volume, and stand volume growth by tree quality grade, and to translate this information into dollars and cents. There are a number of reasons for this work;

Tree quality grading helps to encourage a priority harvest of high value, low vigor trees.

Tree quality grading presents a clear picture of the value structure of the forest stand.

Tree quality grading is an essential part of any and all forest valuation inventories.

Tree quality grading is helpful in building up a forest growing stock of high potential manufacturing and sale value.

Tree quality grading is directly comparable from one forest inventory to the next, making possible a calculation of tree growth by grade and value.

After experience is gained, most cruisers are willing to admit that their earlier objections to grading standing tree quality are no longer valid. Nevertheless, those who resist continue to raise much the same objection to the process:

Logs are sold by grade or scaled by grade at the mill. It is not necessary to tree grade.

The forester must apply the grade-value concept at the woods level so that he will come to know in time, the true or indicated value increment.

The tree quality grading process is inaccurate.

Often this objection indicates only that the rules are not known or the steps in the process are not clear. In Region 9 tens of thousands of trees have been graded with relative accuracy in CFI cases.

Much time is needed for the job.

Experience of one season is more than enough for the thoughtful grader to adequately learn to assess the butt log grade in every sawlog tree within CFI plots. The time it takes is less than two minutes per sawlog tree, or 10 to 20 minutes per plot sample.

Existing tree quality grading rules are incomplete and inadequate.

It is true that great masses of foundation figures are yet to be collected for the support of the tree grading process. Our basic data are incomplete, but in spite of this, some gauge of the relative value structure of the forest is needed. Existing rules and guides will give this gauge until more adequate directions are prepared.

Tree quality grading rules are hard to learn.

Tree quality grading rules, in contrast to lumber grading rules, are simple and easy to learn once the effort is made to learn them. Only a good memory, and the ability to make a practical and speedy application are needed. Most foresters have these qualifications.

Practical training courses are difficult to find.

In the course of many CFI projects this division has been as helpful as possible in the training of personnel to grade the butt logs of hardwood sawlog trees. We have now established a training ground for this work in a local woods. Whoever wishes to run the gauntlet, and assess the grade of 200 trees may do so after a full day of training. The results immediately sort checked from the Port-a-punch cards, and compared with listings of the data for check, will give ample encouragement to the individual grader. We are willing and eager to spend time and effort assisting those who wish to learn tree quality grading.

CAL STOTT
Forester
U. S. Forest Service
Region 9

September, 1961

LOG GRADE RECOVERY BY TREE QUALITY GRADE
IN PERCENT OF
SCRIBNER NET LOG SCALE VOLUME
YELLOW BIRCH

DBH Class	TREE GRADE NO. 1			TREE GRADE NO. 2			TREE GRADE NO. 3		ALL TREE GRADES			DBH Class
	Log Grade 1	Log Grade 2	Log Grade 3	Log Grade 1	Log Grade 2	Log Grade 3	Log Grade 1 and 2 *	Log Grade 3	Log Grade 1	Log Grade 2	Log Grade 3	
	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	% of Net Log Scale	
12	0	0	100.0	0	57.0	43.0	0	100.0	0	6.2	93.8	12
14	30.1	30.6	39.1	0	54.9	45.1	15.0	85.0	negl.	44.2	55.8	14
16	41.9	28.1	30.0	14.0	45.0	41.0	29.0	71.0	22.3	35.0	42.7	16
18	52.7	25.0	22.3	31.5	32.5	36.0	41.9	58.1	40.0	28.3	31.7	18
20	61.9	22.2	15.9	46.2	23.6	30.2	53.6	46.4	53.9	24.6	21.5	20
22	69.5	19.5	11.0	59.7	16.5	23.8	63.5	36.5	62.7	21.3	16.0	22
24	76.4	16.4	7.2	71.3	11.9	16.8	71.0	29.0	65.7	20.3	14.2	24
26 & up	82.9	13.1	4.0	82.5	8.6	8.9	77.3	22.7	83.2	12.8	4.0	26 & up
Ave. No. of Logs	65.9	20.3	13.8	30.7	34.8	34.5	37.4	62.6	46.8	26.2	27.0	Ave.
Net Scale	113	47	166	30	83	118	27	79	149	151	363	No. of Logs
	14,120	4,380	2,960	4,040	4,560	4,500	1,980	3,320	18,700	10,450	10,790	Net Scale

NOTES: These values have been prepared for use in data processing tree quality grade information taken in C.F.I. cases. Applicable in the northern hardwood sawlog stands of Michigan and Wisconsin, the basic information comes from the Trout Creek Mill Scale Study of 1940.

The grades of logs in these old data have been changed to harmonize with top diameters of logs in the current log grading standards. The value in this table give the percent of net Scribner log scale in each DBH class, for each tree quality grade. Data curved and interpolated.

* Insufficient Data for Log Grades 1 and 2 separately.

CAL SCOTT
Forester
U. S. Forest Service
Region 9

September, 1961

LOG GRADE RECOVERY BY TREE QUALITY GRADE
IN PERCENT OF
SCRIBNER NET LOG SCALE VOLUME
BACSWOOD

DBH Class	TREE GRADE NO. 1			TREE GRADE NO. 2		TREE GRADE NO. 3			ALL TREE GRADES			DBH Class
	Log Grade 1	Log Grade 2	Log Grade 3	Log Grade 1 and 2 *	Log Grade 3	Log Grade 1	Log Grade 2	Log Grade 3	Log Grade 1	Log Grade 2	Log Grade 3	
	% of Net Log Scale			% of Net Log Scale		% of Net Log Scale			% of Net Log Scale			
12	0	0	0	50.0	50.0	0	0	100.0	0	4.9	95.1	12
14	37.1	53.3	9.6	52.0	48.0	0	4.0	96.0	negl.	39.6	60.4	14
16	40.8	46.6	12.6	55.0	45.0	0	11.0	89.0	12.8	50.5	36.7	16
18	45.3	40.0	14.7	57.9	42.1	0	24.0	76.0	43.2	39.8	17.0	18
20	49.8	34.0	16.2	61.0	39.0	0	40.0	60.0	43.0	36.5	20.5	20
22	54.9	28.4	16.7	64.6	35.4	0	58.0	42.0	30.6	43.4	26.0	22
24	60.2	23.0	16.8	68.6	31.4	0	77.0	23.0	49.2	29.8	21.0	24
26 & up	66.1	17.8	16.1	72.8	27.2	0	96.0	4.0	50.7	25.4	23.9	26 & up
Ave. No. of Logs	49.4	35.1	15.5	55.8	44.2	0	14.8	85.2	31.4	32.1	29.5	Ave. No. of Logs
Net Scale	4,900	3,400	1,540	2,420	1,980	0	200	1,150	4,900	6,110	4,610	Net Scale

NOTE: These values have been prepared for use in data processing tree quality grade information taken in C.F.T. cens. Applicable in the northern hardwood sawlog stands of Michigan and Wisconsin, the basic information comes from the Trout Creek Mill Scale Study of 1940.

The grades of logs in these old data have been changed to harmonize with top diameters of logs in the current log grading standards. The values in this table give the percent of net Scribner log scale in each DBH class, for each tree quality grade. Data curved and interpolated.

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GAL STOFF
Forester
U. S. Forest Service
Region 2

MAJOR FOREST DISEASES OF LIVING TREES

North Central Region

A Reference List for Use with Continuous Forest Inventory in Region 9, Jan. 1961

Major forest type	Disease	Host	Type of Injury
Aspen-birch	Hypoxylon pruinautum	Aspens	Stem canker
	Armillaria mellea	Aspen, birch	Root rot
	Fomes igniarius	Aspen, birch	White heart rot
	Fomes fomentarius	Birch	White heart rot
	Nectria sp.	Aspen, birch	Stem canker
Hardwoods (including hemlock)	Armillaria mellea	All hardwoods, hemlock	Root rot
	Butyella parasitica	Red and sugar maples	Stem canker
	Nectria sp.	Yellow birch, basswood	Stem canker
		Red and sugar maples	
		American elm	
		Red and white oaks	
	Strumella coryneoides	Oaks	Stem canker
	Fomes connatus	Red and sugar maples	White heart rot
	Fomes everhartii	Oaks	White heart rot
	Fomes fraxinophilus	White and green ashes	White heart rot
	Fomes igniarius	Yellow birch, beech, ironwood	White heart rot
	Polyporus hispidus	Black ash, oaks	White heart rot
	Hydnum erinaceus	Oaks	White heart rot
	Hydnum septentrionale	Sugar maple	White heart rot
	Polyporus glomeratus	Sugar and Red Maples	Yellow heart rot
	Fomes pini	Hemlock	White pocket rot
	Polyporus sulphures	Oaks	Brown cubical rot
	Ceratocystis fagacearum	Oaks	Wilt
	Ceratocystis ulmi	Elms	Wilt (Dutch elm disease)
	Dothiorella ulmi	Elms	Wilt
	Phloem necrosis (virus)	Elms	Wilt
	Diebacks (cause unknown)	Hard maple and yellow birch	Dieback
Spruce-fir	Armillaria mellea	Balsam fir, black and white spruces	Root rot
	Fomes pini	Balsam fir, black and white spruces	White pocket rot
	Stereum sanguinolentum	Balsam fir, black and white spruces	Brown heart rot
	Poria subacida	Balsam fir	White butt or root rot
	Polyporus balsameus	Balsam fir	Brown cubical rot
	Arceuthobium pusillum	Black spruce	Witches'-broom (dwarf mistletoe)

Major Forest Diseases of Living Trees

Major forest type	Disease	Host	Type of Injury
Northern pine	Armillaria mellea	All pines	Root rot
	Fomes pini	Jack and white pines	White pocket rot
	Cronartium ribicola	White pine	Stem canker
	Cronartium cerebrum	Jack pine	Stem galls
	Cronartium comptoniae	Jack pine	Stem canker
	Cronartium comandrae	Jack pine	Stem canker
	C. coleosporioides	Jack pine	Stem canker
Plantations	Armillaria mellea	All species	Root rot
	Polyporus schweinitzii	White pine	Brown cubical butt rot
	Cronartium ribicola	White pine	Stem canker
	Cronartium cerebrum	Jack pine	Stem galls
	Cronartium comptoniae	Jack pine	Stem canker
	Jones Disease	Red pine	Cankers, flags, and mortality
	Root rot (cause unknown)	Jack pine	Root rot and mortality

Lake States Forest Experiment Station
Forest Service
U. S. Department of Agriculture, 1960